

BPA Attachment K Planning Process

Planning Meeting I

March 8, 2017



Agenda

- Introductions
- BPA's Attachment K Planning Cycle – 2017
- BPA's Attachment K Website – 2017
- Economic Study Requests
- Planning Assumptions, Methodology, and Criteria
- 2016 BPA Transmission Plan (aka BPA Plan)
- Next Steps



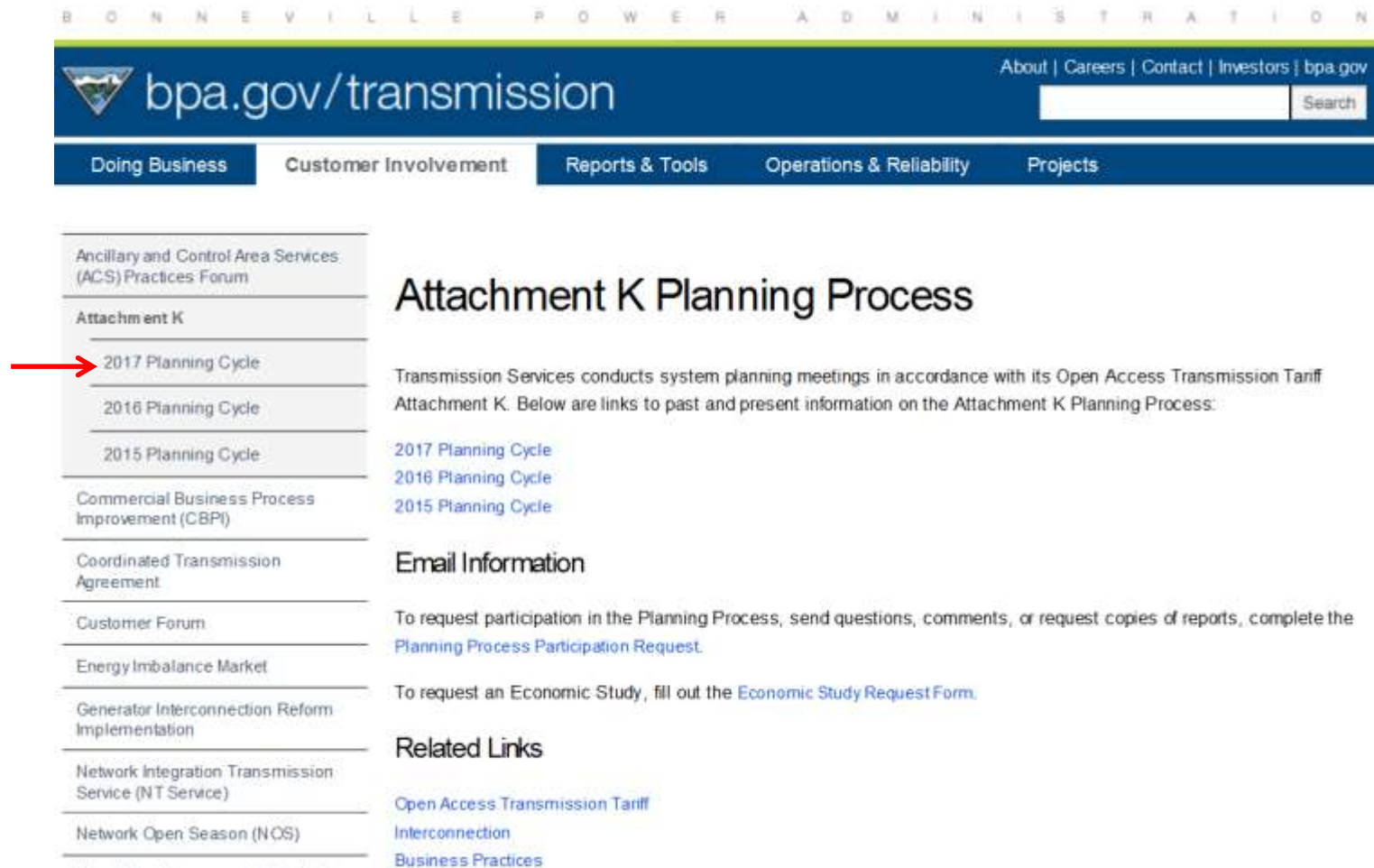
Attachment K Planning Cycle 2017

- **Customer Meeting I** **March 8, 2017**
 - 2016 BPA Transmission Plan (aka BPA Plan)
 - Planning Assumptions, Methodology, Criteria
 - Economic Study Requests
- Posting I Summer/Fall 2017
 - Summary of System Assessment Results and Conceptual Solutions
- Customer Meeting II Fall 2017
 - Draft Plans of Service and Cost
- Posting II End of Year 2017
 - 2017 BPA Transmission Plan (aka BPA Plan)



BPA's Attachment K Planning Process Website

<http://www.bpa.gov/transmission/CustomerInvolvement/AttachmentK/Pages/default.aspx>



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Doing Business Customer Involvement Reports & Tools Operations & Reliability Projects

Ancillary and Control Area Services (ACS) Practices Forum

Attachment K

2017 Planning Cycle

2016 Planning Cycle

2015 Planning Cycle

Commercial Business Process Improvement (CBPI)

Coordinated Transmission Agreement

Customer Forum

Energy Imbalance Market

Generator Interconnection Reform Implementation

Network Integration Transmission Service (NT Service)

Network Open Season (NOS)

Attachment K Planning Process

Transmission Services conducts system planning meetings in accordance with its Open Access Transmission Tariff Attachment K. Below are links to past and present information on the Attachment K Planning Process:

[2017 Planning Cycle](#)
[2016 Planning Cycle](#)
[2015 Planning Cycle](#)

Email Information

To request participation in the Planning Process, send questions, comments, or request copies of reports, complete the [Planning Process Participation Request](#).

To request an Economic Study, fill out the [Economic Study Request Form](#).

Related Links

[Open Access Transmission Tariff](#)
[Interconnection](#)
[Business Practices](#)



BPA's 2017 Attachment K Planning Process Website

<https://www.bpa.gov/transmission/CustomerInvolvement/AttachmentK/Pages/2017-Planning-Cycle.aspx>



The screenshot shows the BPA's 2017 Attachment K Planning Process Website. The header features the BPA logo and the text "bpa.gov/transmission". Navigation links include "About | Careers | Contact | Investors | bpa.gov" and a search bar. The main navigation bar includes "Doing Business", "Customer Involvement", "Reports & Tools", "Operations & Reliability", and "Projects".

The left sidebar contains a list of links: "Ancillary and Control Area Services (ACS) Practices Forum", "Attachment K", "2017 Planning Cycle", "2016 Planning Cycle", "2015 Planning Cycle", "Commercial Business Process Improvement (CBPI)", "Coordinated Transmission Agreement", "Customer Forum", "Energy Imbalance Market", "Generator Interconnection Reform Implementation", "Network Integration Transmission Service (NITS Service)", "Network Open Season (NOS)", "Non-Wires Measures for South of Astoria - RFO", "North American Energy Standards Development", "Southeast Idaho Load Service", "Southern Intertie HNF Non-Rates Solutions", "Tariff Engagement Design", "Transmission Commercial Project Integration", "Transmission Load Service", and "Transmission Plan".

The main content area is titled "2017 Planning Cycle". It includes a paragraph: "Transmission Services conducts system planning meetings in accordance with its Open Access Transmission Tariff Attachment K. These meetings provide customers and interested parties the opportunity to discuss and provide input to the studies and development of the plans of service."

Below this, a paragraph states: "This page provides information about the Transmission Services Attachment K process including notifications of meetings, results of planning studies, plans of service and other reference information. To request participation in the Planning Process, complete and email the [Participation Request form](#)."

The "Meetings" section is dated "March 8, 2017" and includes a link to the "Agenda".

The "Economic Studies" section states: "To request an Economic Study, fill out the [Economic Study Request Form](#)."

The "Reference Information" section includes a link to "Requesting the System Assessment Assumptions & Methodology".

The "Related Links" section lists: "FERC Order 1000", "FERC Order 890", "NERC Reliability Standards", "Open Access Transmission Tariff (includes Attachment K)", "Planning Studies", "WECC Reliability Criteria", "Proposed Tariff Changes - Attachment K", and "Attachment K Transmission Planning Process Business Practice".



BPA's Attachment K Planning Process Website

- Meetings
 - Meeting announcements, agendas, etc.
- Reference Materials
 - Materials associated with the Planning Process, participation forms, etc.
- Email Information
 - PlanningParticipationRequest@bpa.gov
 - PlanningEconomicStudyRequest@bpa.gov
- Economic Studies
 - Requesting and Tracking Economic Studies
- Related Information
 - Links to information related to the Planning Process



Economic Study Requests

- What is an Economic Study?
 - Studies may be requested to address congestion issues or the integration of new resources and loads.
- How are Requests for Economic Studies submitted?
PlanningEconomicStudyRequest@bpa.gov
- Requests may be submitted any time...
Requests submitted after October 31 will be considered in the next prioritization process
- BPA will complete up to two Economic Studies per year at its expense
- There were no Economic Study Requests received during the annual cycle ending on 10/31/2016



Planning Assumptions & Methodology

- System Reliability Assessments may be based on current or qualified past studies as allowed by the NERC TPL Reliability Standard
 - The 2017 System Assessment be based primarily on new studies
 - Note: Previously, BPA's 2016 System Assessment relied largely on the results of qualified past studies from the 2015 System Assessment.



Planning Assumptions

Base Cases

- Loads in the Northwest Area
 - Utilize peak load forecasts for 10 years out, reviewed and/or updated annually, and off-peak load forecasts for the near-term planning horizon.
 - Peak load forecasts for both winter and summer seasons.
 - Provided by Customers for the IOUs and larger utilities (approximately 75-80%)
 - Developed by BPA Agency Load Forecasting group if not supplied by customers (approximately 20-25%)
- Resources
 - Model existing generating resources and selected future resources proposed to be online, if needed to meet the forecast loads within the 10 year horizon.



Planning Assumptions (continued)

- Update Northwest Area database
 - Update with the latest seasonal peak and off-peak load forecasts
 - Update with the latest network topology
 - Model future resources, network expansion projects, and firm transmission obligations

- Sensitivity Cases

Other patterns and conditions may be developed as sensitivities based on:

- Load level, load forecast, or dynamic load model assumptions
- Expected transfers
- Expected in-service dates of new or modified Transmission Facilities
- Reactive resource capability
- Generation additions, retirements, or other dispatch scenarios
- Or other system conditions unique to certain geographical areas



Planning Methodology

- System Assessment.
 - Check network topology and load forecast / load growth assumptions for each area of interest.
 - Modify base cases to stress the study area and benchmark with historical data.
 - Develop sensitivity cases as needed for worst case generation or transfer patterns.
 - Perform steady state power flow simulation of all single contingencies and credible common mode outage scenarios.
 - Model RAS as required.
 - Study a large selection of single and multiple contingencies to evaluate voltage stability and transient stability performance.



Planning Methodology (continued)

- Identify Potential Problems
 - Compare System performance with NERC and WECC Reliability Standards to determine if there are potential system performance deficiencies.
 - Identify deficient areas for follow up and possible corrective action plans.
 - Problems may include:
 - Steady State - Thermal overloads or Under/Over Voltages
 - Stability
 - Insufficient reactive margin (voltage stability)
 - Large voltage or frequency deviations (transient stability)
- Develop Alternative Conceptual Solutions
 - Solutions to mitigate potential system performance deficiencies may include transmission expansion projects, facility upgrades, and/or non-wires solutions (e.g. energy efficiency, distributed generation, redispatch, or demand management).



Planning Methodology (continued)

- Cost Estimates for Alternatives
 - Preliminary cost estimates are developed for the alternatives
 - Preliminary estimates are used for comparing cost effectiveness of the alternative solutions
- Develop a Plan of Service for the Preferred Alternative
 - Establish the project team and determine the project scope
 - Draft Project Requirements Diagram (PRD) and circulate for comments
 - Finalize the plan of service and PRD
 - Update and refine cost estimates
 - Develop the Business Case and Request capital funding for project



Planning Criteria

Standards and Criteria used for Planning:

- NERC and WECC Reliability Planning Standards
 - NERC (North American Electric Reliability Corporation) TPL-001-4
 - WECC (Western Electricity Coordinating Council) TPL-001-WECC-CRT-2.2 Regional Reliability Criteria



2016 BPA Transmission Plan (aka BPA Plan)

- **BPA's Plans for Capital Expansion Projects**
- Spans the 10 year horizon from 2016-2026
- Projects categorized by
 - Load Service Areas
 - Transfer Areas
 - Interties
 - Internal Paths
 - Generator Interconnections
 - Line and Load Interconnections
- The following information is provided for each Project:
 - Project Description
 - Purpose
 - High-level Cost Estimate
 - Proposed Energization Date



Next Steps

- System Assessment
- Posting I – Summer/Fall 2017
 - Summary of 2017 System Assessment Results and Conceptual Solutions

Sign up to participate in future meetings or receive additional information by:

- Filling out the Participation Request form on BPA's Planning Process website and sending it via e-mail to: PlanningParticipationRequest@bpa.gov

